

# It's complicated: The relationship status of public and private IS research.

---

**Lies Van Cauter<sup>1</sup>, Monique Snoeck<sup>2</sup> & Joep Cromptvoets<sup>1</sup>**

University of Leuven, Public Governance Institute<sup>1</sup>. Management Informatics<sup>2</sup>.

[Lies.VanCauter@soc.kuleuven.be](mailto:Lies.VanCauter@soc.kuleuven.be), [Monique.Snoeck@kuleuven.be](mailto:Monique.Snoeck@kuleuven.be),

[Joep.Cromptvoets@soc.kuleuven.be](mailto:Joep.Cromptvoets@soc.kuleuven.be)

## Abstract

*Public and private sector organisations show interesting differences and similarities. Only a little group of researchers paid attention to this topic. Much remains unclear. The definition of what is 'public' and 'private' is contested and empirical research results cannot provide conclusive answers. Nevertheless it might be fruitful to picture the current state of research e.g. to prevent oversimplification or knowledge loss and to discover areas of worthwhile mutual cross-fertilization. Via a literature study of research in the past 15 years, we also aim to discover what the potential areas of future research are, especially concerning public and private information systems.*

*e-Commerce/e-Business, e-Government, differences and similarities*

## 1. Introduction

When a new research field such as e-government arises, two tendencies can be distinguished. On the one hand wheels are reinvented. On the other hand things are taken for granted and seem to be imported too easily from one sector to another (Barzilai-Nahon, 2010; Melin & Axelsson, 2009; Nutt, 2000; Perry & Rainey, 1988). Melin & Axelsson (2010) believe that the Information System (IS) field, dealing with e-government and e-business, forms no exception. IS research has been argued to be less successful in developing cumulative research, too often resulting in a new theoretical frame being launched for studied phenomena.

A more fruitful approach could be a careful analysis of already existing frames, preventing in this way duplication as well as over-optimistic and a-theoretical work that does not add much practical guidance to e-government (Barzilai-Nahon & Scholl, 2007; Scholl, 2006; Benbasat & Zmud, 1999). Private IS research has built up a considerable body of knowledge that could be used to improve the limited understanding of e-government (Kankanhalli & Kohli, 2009). Exploring and understanding the differences and similarities between e-government and e-business is useful as a starting to foster learning, cross-fertilization and enable knowledge transfer between the private and public sector should take place (Melin & Axelsson, 2010; Morgeson & Mithas, 2009).

Nevertheless, two main problems pop up:

First, little empirical research compares and contrast these two sectors (Morgeson & Mithas, 2009; Ward, 2006). Bozeman and Bretschneider (1986) proposed a framework for public management IS that argued that there were important underlying differences between public and private management IS (in Rochelau & Wu, 2002). Since the IS possibilities have however changed drastically. In the mid 2000's comparative studies of the phenomena of e-Commerce/e-Business and e-Government did not really emerge yet (Scholl, 2006). The body of comparative literature on e-Commerce/ e-Business and

e-Government has not grown much ever since (Barzilai-Nahon & Scholl 2010; Scholl et al, 2009). The sparse empirical research comes to somewhat different conclusions (Ward, 2006). On the one hand phenomena in e-Commerce/e-Business seem to be mirrored in e-Government and vice versa, few studies, if any, exist which capture the lessons learned and summarize the current practices (Barzilai-Nahon & Scholl, 2010; Scholl, 2006). On the other hand several assumptions exist on the differences between public and private IS. Many people would intuitively agree with the assumptions but it is important that these are actually empirically tested. The existing research findings on this topic are not very consistent (Rochelau & Wu, 2002).

Secondly despite huge investments in e-government initiatives and low implementation rates, IS researchers show a less than enthusiastic interest in e-Government (Nandi & Nayak, 2008). There has been some initial work in the 1970s and 80s (e.g. by Kraemer) but the bulk of initial e-Government research has been performed in the public administration domain. The theoretical progress does not seem to match up with the level of relevance. The reason behind this lack of interest might be the perception and research results that the public sector lags behind the private one concerning successful IT deployment. *“Since researchers have a bias to study IS that are more effective, efficient and successful, this could lead to the opinion that public sector IS is not an area of fruitful study”* (Kankanhalli & Kohli, 2009).

However, less successful public sector IS could still learn lessons from more successful ones and opportunities for cross-learning in both directions may be worthwhile (Kankanhalli & Kohli, 2009). A possible way to answer to the need for a more robust body of knowledge on public IS is applying well-tested mainstream IS theories to a public sector context. Such research might find out the explanatory power of the theories for observed similarities or differences, might bridge the gap between the private and public IS literature and could give a direction to future researchers and practitioners (Nandi & Nayak, 2008).

One model in the mainstream IS literature, that is cited in thousands of publications and validated in more than 300, is the (updated) IS success model of Delone and McLean. We aim to learn from this model. We plan a Delphi study and a survey on the applicability of the Delone & Mclean model in the public sector in the near future. In this preliminary stage of our research we will follow Melin & Axelsson (2009) and Morgerson & Mithas' (2010) advice and take the exploration of similarities and differences of the private and public sector as a point of departure. As such the research question is:

*RQ: What are the main and IS specific similarities and differences between public and private sector organisations?*

The remaining of this chapter is organised as follows. The next section deals with methodology. In section three what constitutes a public or private sector organization is defined. Section four digs in the current literature and shows some main and IS specific similarities and differences between public and private organisations. Future research opportunities are discussed in section five. We conclude in section six.

## 2. Methodology

The research question is explored via a literature study. In order to do this in a systematic way, we follow the four phase-plan of Bandara et al (2011):

- 1) The first phase contains the identification and extraction of articles. The period in time is limited to the years 2000-2014, 15 years. The reason for this delineation is that for e.g. Scott

(2002) did a literature review for the period 1970-2002 and Boyne (2002) from the years 1960 upto 1999. Certain articles from the past were quoted very frequently. Examples of reoccurring names are: Allison, Brettschneider, Blumentahl, Bozeman, Perry, Rainey, Ring etc. We searched the table of contents of several journals: *Management Information Quarterly*, *Government Information Quarterly*, *the International Journal of Information Management* and *the International Journal of Electronic Government Research*. We also searched three other journals that did not deliver useful articles concerning our purpose. We only found the articles until 2008 for MIQ and for IJEGR 2014 was not yet available. Subsequently following Levy & Ellis (2006) and Webster and Watson (2002) we used the backward searching method. We reviewed the reference list of the collected articles for interesting previous research. Forward searching was applied in the ISI Web of Science and in Google Scholar. Used key words are: *public (sector)*, *private (sector)*, *IS*, *difference*, *similarity*, *e-government*, *e-business*, *e-commerce*, *governmental agency*, etc. After re-evaluating the collected articles, 20 remained. We mainly found articles situated in the public administration, information system and organizational research field. More information about the authors, the goals of the article and the studied factors can be found in appendix A.

- 2) During the second phase data is prepared for analysis. Coding schemes are introduced in order to know what to capture. Pre-coding guidelines are fixed to determine how the content within the identified papers will be captured. We used Nvivo as a qualitative data management tool to arrange and code our data. We tried to define key concepts, to reveal theoretical underpinnings of the different authors' view, we aimed synthesizing literature under a number of concepts and paid attention to current gaps in literature.
- 3) In phase three it is time for the actual coding. We coded on two levels. Nvivo proved to be a useful tool for a literature study. It has a function to see the broader context around a code when needed and recoding data goes very fluently. Nevertheless a few negative points appeared. First the system crashes from time to time, (external) saving is important. Second Nvivo was not able to code tables in a decent way and third Nvivo could not read some pdfs at all or changed these texts in unreadable rectangles.
- 4) Finally analysis and writing up takes place in phase four. We tried to get a logical organised overview of the selected literature and checked it for redundancies. We noticed that 4/20 selected studies H.J. Scholl is co-author.

### 3. A public or private sector organisation: what's in a name?

It is useful to first define what constitutes a public or private sector organization before comparing the two (Scott, 2002). The public-private sector debate can be traced to the beginnings of the twentieth century. The words public and private are derived from the Latin language: public means 'of the people,' while private means 'set apart'. Defining what the terms 'public sector/organisation' and 'private sector/organisation' refer to, has become an increasingly popular topic in public administration and organizational theory research.

The classification of an organisation as public, private or something in between (a hybrid), depends on the perspective taken: many views exist and the definition of 'public' and 'private' is unclear and contested. Mitchell Scott (2002) reviews the existing body of the organizational information resource management theory from the 1970s until 2002. He distinguishes three main approaches in literature about differences between public and private sector information resource management: the generic approach, the core approach and the dimensional approach. The different definitions of public and

private sector organisations we came across during our literature study can be matched with Scott's distinction:

### **3.1. The generic approach**

The generic approach classifies organisations as either public or private. It downplays the differences between public, private and hybrid organisations. The main idea is that every organisation regardless of the sector, is similarly based upon its management functions, organizational processes, managerial values and decision making processes. There are inconsequential differences between public and private sector organisations. Early supporters of this approach are Murray (1975), Lau et al, 1980 and Stiullman (1988) (Scott, 2002).

Researchers that follow the generic approach, plea that evidence of the disappearing distinct line between public and private sector can be found in the movement towards the adoption of private business practices and towards the privatization of many public services. The migration of organisations towards a more hybrid structure, led to a blurring of distinct organizational boundaries. This makes the classification of an organization as 'public' or 'private' insufficient compared to other organizational classification methods (Scott, 2002).

The idea that the public sector should do its business more like the private sector, dates back to Woodrow Wilson in the 1880s. The idea reoccurred in public administration research during the years e.g. in Taylor's plea for efficiency, in Gulik's PODSCORB, in the public choice theory, in Waldo's and Simon's statement that public administration could and should accept business ideology etc. (Keltgen, 2009; Boyne, 2002). In the 1980s and 1990s public sector reforms emphasize the ability of the public sector to overcome its perceived deficiencies through the adoption of private sector best practices (Morgeson & Mithas, 2009; Kankanhalli & Kohli, 2009). Private sector management processes such as customer service, performance indicators and cost savings come to the fore (Boyne, 2002; Rochelau & Wu, 2002). The New Public Management (NPM) flourishes (Ward, 2006; Halvorsen et al, 2005). In the hope to draw upon the market-based efficiencies public organisations also partner with the private sector, so called 'public private partnerships' (PPP) (Kankanhalli & Kohli, 2009; Halvorsen et al, 2005).

### **3.2. The core approach**

There are reasons to believe that government may not always be successful in implementing practices that are otherwise common place in the private sector (Morgeson & Mithas, 2009). Dunleavy et al (2005) state that the NPM managerial and governance ideas of the 1980s and 1990s have died in the water. Parts of the NPM reform message even are reversed because 'they fail to yield the desired effects' and 'lead to policy disasters'. There are inherent differences between government led and commercial oriented organisations that make the adoption of certain private sector practices by the public sector somewhat problematic (Ward, 2006). The core approach (also known as the ownership model) disagrees with the generic approach on the point that the differences between public and private sector organisations would be inconsequential. There do exist fundamental differences that allow organizations to be uniquely classified by sector. Early adopters of this approach are Buchanan (1974) and Rainey (1979;1983) (in Scott, 2002).

Public and private sector organisations can be distinguished along several core differences. Bozeman & Bretschneider (1994) suggest a classification as either distinctly public or distinctly private based on the formal legal status of an organization (in Scott, 2002). Rainey et al (1976) include political and legal constraints as core differences (Nutt, 2000). While Scott & Falcone distinguish the different view of property right theorists and public choice theorist. The first suggest that private managers see good

economic returns and increased rewards as an incentive. The latter believe that public managers lack market condition indicators, they are less sensitive for efficient resource use and depend on other indicators to determine production levels. The core approach provides a simple standard for quickly classifying organizations based upon a few key factors. Many organizations can be easily classified as either distinctly public or distinctly private. A disadvantage of the core approach is its inability to classify hybrid organisations (Scott, 2002).

### **3.3. The dimensional approach**

Some private sector organisations are more like public sector ones and some public sector organisations more like private ones (Halvorsen et al, 2005). Bozeman (1987) states that ‘all organisations are public, (...) an organisation is public to the extent that it exerts or is constrained by political authority’ (in Sundgren, 2005; Rochelau & Wu, 2002). One could also remark that all organisations are private. Differences between public and private organisations are not absolute as proposed by Bozeman, but rather a matter of degree (Rochelau & Wu, 2002). Perry and Rainey (1988) observed that in practice the distinction between the public and private sector might be troublesome, apart from clear-cut cases of public owned and funded organisations versus privately owned and funded ones, all shades of grey (hybrids) exists that blur sector boundaries. This makes the distinction between the two sectors less meaningful and sometimes even problematic (in Scholl, 2006).

So although some organizations can be clearly classified as either dominantly public or dominantly private, many organizations fall between these two extremes. The dimensional approach makes the distinction between public or private based on how an organization is influenced by external political and economic authority. In 1994 Bozeman & Bretschneider pointed out that much of organization theory ‘continues to ignore external political and economic forces’ (in Keltgen, 2009). Few organisations are purely private or public, organisations can be placed on a public-to-private continuum (Scholl, 2006). Contrary to the core approach, the dimensional approach can account for the many hybrid organizations that exist in today’s organizational environment. Wamsley & Zald (1973), Bozeman (1984, 1987) and Emmert & Crow (1988) were early followers of the dimensional approach (in Scott, 2002).

Defining an organisation as public, private or something in between is difficult. Exceptions exist for each stereotype (Melin & Axelsson, 2010; Halvorsen et al, 2005; Scott, 2002). Goal differences for IS exist within the same stereotype, e.g. central governments are interest in oversight missions while local governments focus on their own functioning (Kankanalli & Kohli, 2009; Ward, 2006; Rochelau & Wu, 2002). Similarly private sector companies will for example differ in how they go about pursuing profits: big ones often want the largest share of the market while small business aim to make enough money for a secure lifestyle (Halvorsen et al, 2005). Caudle et al (1991) propose to distinguish statements about public-private differences based on key variables such as level of management and government (in Rochelau & Wu, 2002). Research supports the existence of differences between the two sectors but many traditional stereotypes still lack convincing evidence. One must be careful not to place blanket classifications upon an organisation because of its sector affiliation (Scott, 2002). It would also be inappropriate to draw definitive conclusions on the differences between public and private organizations from the available evidence (Boyne, 2002). Some of the current research on similarities and difference between these organisations is reviewed in the next section.

## **4. Comparing public and private organisations**

Over the years scholars and practitioners tried to reinforce or erase the connections between public administration and business administration (Keltgen, 2009). The adoption of private sector models has



been viewed with scepticism in the literatures on public administration. One could wonder if private sector practices could be translated to the public sector on a one-to-one basis (Weerakkody et al, 2011), or if a significant alteration is needed (Kankanhalli & Kohli, 2009). Some researchers even say that differences between public and private organisations are so fundamental that business practices should not be transferred to the public sector. The difference in a variety of important respects, such as organizational environments, goals, structures and managerial values, act as barriers to transfer management techniques from the private to the public sector (Boyne, 2002). In the 1950s Sayre (1953) created a storm of discussions with his statement that public and private organisations are ‘fundamentally alike in all unimportant respects’ (Keltgen, 2009). Allison (1979) agrees with its colleague and claims that *“the notion that there is any significant body of private management practices and skills that can be transferred directly to public management tasks in a way that produces significant improvements, is wrong”*. Along Bretschneider (1994) government administration ‘differs from all other administrative work to a degree not even faintly realized outside’ (in Keltgen, 2009). So is the aim to compare both sectors pointless or at worst counterproductive?

Not all researchers share Sayre’s view. Boyne (2002) claim that Sayre’s assertion is not supported by empirical evidence. Kankanhalli & Kohli (2009) believe researchers should try to create cross-learning and use the existing knowledge and experience. Researchers that believe that the gap between the two sectors is narrowing, recognise that differences exist. Instead of seeing public and private organisations as either closely related or totally different, considering a critical, cautious, incremental but mutual transfer might be more fruitful (Weerakkody et al, 2011; Melin & Axelsson, 2010; Kankanhalli & Kohli, 2009; Keltgen, 2009; Boyne, 2002; Rochelau & Wu, 2002). It necessary to consider differences more carefully between the sectors in order to successfully transfer practices. This is especially the case for IS research. IS academics agree that a dearth of comparing research exists and that assumptions should be tested more systematically and rigorously (Kankanhalli & Kohli, 2009). Recent lauded research of Scholl et al (2009) concluded that the current findings in e-Commerce/ e-Business and e-Government research, show that despite major similarities, the two phenomena follow quite separate and distinct trajectories. We need to understand the complex mesh of technological, organisational and social factors and processes involved in e-Commerce/e-Business and e-Government to see relevant cross-fertilization and eliminate unnecessary duplication (Scholl et al, 2009, Barzilai-Nahon & Scholl, 2007; Scholl, 2006).

A variety of classification schemes has been used to identify factors that distinguish public and private organisations (e.g. Allison, 1984; Bozeman, 1987; Neustadt, 1979; Perry & Rainey, 1988; Ring & Perry, 1985 in Nutt, 2000). The most widely accepted classification is that of Rainey et al. Rainey et al (1976) identify public-to-private differences in three areas: environmental drivers and constraints (see point 4.1.), organizational mandates and scope (see 4.2.) and internal processes, complexities and incentives (point 4.3.) (in Barzilai-Nahon & Scholl, 2007; Scholl, 2006; Rochelau & Wu, 2002). E.g. Neustadt (1979), Allison (1984), Nutt & Backoff (1993; 2000) and Euske (2003) endorsed this distinction. Along Scott (2002) other past empirical research classified differences among others by motivation, environment, goals and objectives, structure, management processes, decision making and strategic management.

#### **4.1. Environmental drivers and constraints**

Environmental factors are those that are external to an organisation (Scott, 2002). We distinguish legal/ political/ economic constraints and revenues

#### 4.1.1. Legal/ political/ economic/ strategic constraints

Public organisations face bigger legal constraints and political influence (Melin & Axelsson, 2010; Rochelau & Wu, 2002). They are also heavily influenced by lobbyists and the public. Where management of IS in the private sector is geared to increase economic efficiency and profitability, public IS provide both economic and political efficiencies and also serve a policy mission (Scholl, 2006). Private sector managers receive directives from stockholders and executive boards while public managers receive these from political forces and multiple sources of authority (Kankanhalli & Kohli, 2009; Keltgen, 2009; Dahl & Londenblom in Boyne, 2002; Scott, 2002, Nutt, 2000). That is not to say that private sector organisations only aim profit and are not accountable to the public opinion or society. Public opinion is the driving force for supply and demand (Halvorsen et al, 2005; Euske, 2003; Scott, 2002; Boyne, 2002).

Nevertheless, the majority of past empirical research, although not overwhelming, supports the assertion that public organisations are more open to external influences (Boyne, 2002). Because of political, lobbyist and public influences, public management IS have a greater focus on external and vertical linkages than private sector organisations (Rochelau & Wu, 2002). Public sector organisations are often swayed by political vagaries and the need to acquire and maintain support from different constituencies (Ward, 2006; Boyne, 2002). As such, action in public organisations is often based on power and politics relations (Halvorsen et al, 2005).

Because of a bigger openness and more political influences, strategic planning is more difficult in government. The obligation of being open, brings along that most public organisations do not have the luxury of keeping strategic decision making secret (Nutt, 2000). Frequent changes in policy make the formulation of long term strategic plans hard (Keltgen, 2009; Ward, 2006). IS projects initiated in one political regime may not gain the same emphasis in the subsequent one. Long term strategizing e.g. on content management is difficult because goals change frequently (Barzilai-Nahon & Scholl, 2006). Also, there is little urgency to make decisions in public organisations during leadership transitions (Nutt, 2000). There is a constant pressure for quick results that help re-elect the political rulers during legislature (Boyne, 2002). A consequence for IS in government is that mostly those IS with immediate returns are likely to be implemented. However this fragmented way of implementation becomes unmanageable after a period of time (Nandi & Nayak, 2008). Implementation of e-government systems lags behind policy ambitions, and rhetoric of reform (Rana et al, 2013). When comparing the success rates of IS in the public and private sector, governments generally lag behind (Goldfinch, 2007).

#### 4.1.2. Revenues

Unlike their private counterparts, public organisations are largely funded by taxation rather than fees paid directly by customers (Halvorsen et al, 2005; Boyne, 2002). Public organisations depend on revenues that are based on political decisions rather than market performance (Melin & Axelsson, 2010). Governments often work with one-year budgetary cycles which make multi-year budget strategies and long term planning difficult (Ward, 2006). The environmental factor 'revenues' seems to further confirm the public strategic planning problem imposed by quick win political constraints.

Beside a different funding system, governmental and business organisations seem to have a different view on investments and savings as well. Public organisations face more financial limitations (Tait & Pacheco, 2000). Kankanhalli & Kohli (2009), Rochelau & Wu (2002) and Nutt (2000) give the example that it is difficult to use public service funds for collecting data on expensive or risky sophisticated technology. They expect private organisations to invest more resources in IT as a competitive advantage. Where efficiency gains and cost savings in the economy are rewarded through profits, similar gains in government are rewarded with budget cuts, staff reductions, loss of resources and consolida-

tion of programs (Fountain in Morgeson & Mithas, 2009). If overspending budget doubles the profit in a private sector organisation, it will be rewarded, while overspending is not allowed in the public sector (Rochelau & Wu, 2002).

Both sectors function in an environment where revenues are under pressure because of an economic and financial crisis. Limits in budget can boost innovation in both sectors. For both it also appears to be for e.g. more easy to introduce and establish process alignment and integration efforts in times of economic hardships and pressures (Barzilai & Scholl, 2007; Halvorsen et al, 2005).

A point of similarity is that both sectors prefer to remain silent on lost or gained money (Nutt, 2000).

## **4.2. Organizational mandates and scope**

Transactional factors are those that involve the many relationships that an organization has with its external environment (Scott, 2002). We distinguish scrutiny, customer vision and procurement.

### **4.2.1. Scrutiny**

Scholl et al (2009) remark that balancing stakeholders interests and managing their expectations is similar for e-Commerce/e-Business and e-Government. However the public decision making process requires more emphasis and effort in this regard. Public organisations are more open to external influences in their environment. Usually public IS managers are confronted with greater levels of internal and external review than their private counterparts. Public sector IS systems necessarily give more attention to concerns such as accountability, openness and privacy, equity or representativeness (Barzilai-Nahon & Scholl, 2010; Melin & Axelsson, 2010; Nandi & Nayak, 2008; Rochelau & Wu, 2002).

Rainey et al (1976) remark a greater scrutiny of public organisations (in Rochelau & Wu, 2002). Collaboration and involvement of stakeholders in processes are regarded of highest importance in the e-Government sector (Scholl et al, 2009). In contrast, customers will hardly be involved in the strategic decision-making of companies (Janssen et al, 2008). As another example, governments are far more detailed and transparent about their strategic technology plans than private sector companies (Kankanhalli & Kohli, 2009). Public organisations are more burdensome because of accountability obligations towards multiple stakeholders (Morgeson & Mithas, 2009; Nandi & Nayak, 2008). Due to the so called ‘fishbowl effect’ (Blumenthal, 1983) and demands for accountability, public organisations are expected to be more cautious and be more involved in red tape, whereas private organisations are expected to take more risks (Nutt, 2000; Rochelau & Wu, 2002; Bretschneider (1990) and Bozeman et al (1992) in Scott, 2002). Private decisions are less often reported in the press (Barzilai-Nahon & Scholl, 2010 ; Keltgen, 2009).

### **4.2.2. Customer vision**

One of the main differences between the structures of public and private organisations is the difference in customers: citizens or stockholders. Public organisations have a more diverse group of ‘clients’ and interests (Halvorsen et al, 2005). Public agencies cannot deny services to underprivileged groups (Kankanhalli & Kohli, 2009; Keltgen, 2009; Janssen et al, 2008; Halvorsen et al, 2005; Sundgren, 2005; Rochelau & Wu, 2002). Public organisations are open systems that try to ensure that services are responsive to public needs, their private sector counterparts may ignore most constituents (Boyne, 2002).

The difference in ‘customers’ between the sectors seems to influence differences in design and assessment of information systems:



E-government and e-Business/ e-Commerce have different drivers concerning their customers (Scholl et al, 2009). When designing public IS, the digital divide and ethics are taken in mind. A variety of public IS users might be non-IT confident citizens (Kankanhalli & Kohli, 2009). E-Commerce practice is on the other hand much less concerned with the digital divide, it mainly researches potential customers and provides them secure and safe transactional spaces (Scholl et al, 2009). Another example is the design of one-stop-shops. The creation of these 'shops' is similar in both sectors but the drivers in e-Commerce/e-Business are a larger customer segment and more value while those in e-Government are reducing red tape and improving the range of services (Janssen et al, 2008).

Assessing the success of e-government has moved from assessing technological sophistication towards the success of using technology in encouraging participation (Janssen et al, 2008). Citizens' acceptance of e-government rests on trust, information access, public accessibility, quality of service, time saving, efficiency of service and social awareness (Barzilai-Nahon & Scholl, 2010; Melin & Axelsson, 2010). Stakeholder expectations are different regarding e-Government and e-Business/e-Commerce (Barzilai-Nahon & Scholl, 2010). Morgeson & Mitthas (2009) found that 'customers' of e-Government websites have lower expectations of governmental websites but because these expectations are disconfirmed, they are more willing to use and recommend this sites than private websites. Sundgren (2005) states that some private IS websites show similarities with governmental sites as they are open to use by a general public. Barzilai-Nahon & Scholl (2010) found that although external electronic transactions involving citizens are not as sophisticated as in private sector, some governments narrow the gap. In contrary to private sector organisations, government cannot start from scratch because of certain legacies.

#### **4.2.3. Procurement**

Economic factors are less dominant in public sector procurement decisions (Halverson et al, 2005; Rochelau & Wu, 2002). Bretschneider found that especially in procurement areas, there is a greater organizational interdependence in the public sector. Public organisations are encouraged and sometimes mandated to borrow computer systems mutually (Rochelau & Wu, 2002). Public and private sector concerns use different assessment criteria to acquire hard- and software (Ward, 2006). But approaches to purchasing have narrowed between the two sectors (Rochelau & Wu, 2002). Public sector IT functions are often outsourced (Kankanhalli & Kohli, 2009).

### **4.3. Internal processes, complexities and incentives**

Processes are the internal operations of an organisation (Scott, 2002). We discuss processes concerning goals, bureaucracy, performance, personnel, leadership and autonomy.

#### **4.3.1. Goals**

Public organisations often have multiple shifting goals that are difficult to measure and that can conflict with each other (Morgeson & Mithas, 2009; Halvorsen et al, 2005; Euske, 2003; Boyne, 2002). The objectives in the public sector are more complex than those of the private sector (Rochelau & Wu, 2002). Nevertheless Keltgen (2009) remarks: 'On a more abstract level the social aspect of both is still the circulatory system that links them, as both serve people and exist only because their missions are to meet human needs'. Both sectors face similar constraints and challenges, management in all types of organisations should be viewed as a generic process (Keltgen, 2009). Kankanhalli & Kohli (2009) remark that public sector entities may also experience competitive forces just as private organisations do, e.g. to attract interesting businesses to their localities. According to Janssen et al (2008) e-Government business models are similar to e-commerce and e-business in their stages of development. Both are more effective when processes are streamlined (Barzilai –Nahon & Scholl, 2010). Morgerson

& Mithas (2009) state that many government IS systems are designed and maintained by private sector service providers, which underlines the interconnectedness of the two domains.

Although drivers of innovation are different in e-Commerce/e-Business and in e-Government, pressures for organisational change, service innovation and transformation towards more customer centric way of conducting business are similar (Barzilai-Nahon & Scholl, 2010). Whether the use of IT is a core function in government is disputed (Kankanhalli & Kohli, 2009; Rochelau & Wu, 2002).

Researchers seem to agree that public and private organisations have different goals/ aims. Barzilai-Nahon & Scholl (2010) believe that private organisations strive for customer value and revenues while public organisations desire interoperation, intergovernmental relationships and access to services and information. Ranson & Stewart remark that public organisations stem from common ownership and the aim is to achieve collective purposes (in Boyne, 2002). These organisations should not compete for customers and are expected to collaborate with organisations that offer similar services. Duplication is undesirable in the public sector (Keltgen, 2009; Nutt & Backoff in Boyne, 2002). As such, the public sector is likely to be better able to take advantage of other organisation's experiences. Public officials are more willing to share the most intimate details of their IS. Low response rates in most surveys on private sector IS, support the argument that they view information on their systems as economically crucial and do not want to share it. Public sector seeks to transmit IT advancements to other public agencies. In order to maintain competitive advantage, propensity to transfer information would mean a counterintuitive practice in the private sector (Kankanhalli & Kohli, 2009; Ward, 2006; Rochelau & Wu, 2002). In the private sector new demands are a welcome market opportunity. While for public services this means a political challenge (Halvorsen et al, 2005)

Empirical research does not seem to reach consensus on the difference between priorities and the clearness/ vagueness/ unambiguousness of public versus private goals:

Rochelau & Wu (2002) come to the conclusion that public sector information priorities tend to lag behind those of private sector management. Issues rated at the top by public sector managers tended to be issues that had already peaked and were on the decline in the private sector. In a survey on the differences between the priorities assigned to IS technologies by public and private Chief Information Officers (CIO's), Ward (2006) only finds little statistical distinction between the ranking orders. He states his results are somewhat counterintuitive to the existing literature that puts forward the idea that significant differences exist. Initial scholars speculated that as technology evolved, the divergence between the management procedures of these types of organisations would become more prominent, while Ward comes to the opposite conclusion. Remarkably Barzilai-Nahon & Scholl (2010) and Scholl (2006) refer to a study of Ward and Mitchell (2004) where differences in priorities of public and private sector CIO's are quite clear. Where public CIO's top three contains: 'the implementation of an IT architecture', 'cultural change' and 'retaining skilled professionals', the private CIO's top is 'simplifying business processes', 'improving service' and 'effective relationships with senior executives'.

Public managers have multiple goals imposed upon them. Public agencies are pulled in many directions simultaneously. Boyne (2002) refers to six studies that investigated whether goals of public organisations are more vague compared to private organisations. Three studies found that public goals are more vague and state that policy ambiguity is an asset: The more crisp and clear the goals, the more likely that they will prove unacceptable, so performance targets are inherently unclear. Boyne warns that measured differences in goal clarity in these studies are small. Two other studies could not find differences and in one study public goals are declared clearer. Scott (2002) also found limited

differences between the sectors in terms of their goal clarity: Rainey (1983) and Rainey et al (1995) claim there is no difference, while Baldwin (1987) found that public sector goals are slightly less clear. We did not find a study that tested the argument that public organisations have a larger number of goals.

#### **4.3.2. Bureaucracy**

Private sector has been praised for its higher agility and less burdensome bureaucracy (Barzilai-Nahon & Scholl, 2010; Scholl et al, 2009; Scholl, 2006). On the other hand, Nutt (2000) wonders whether the coercive nature of most government actions might justify the constitutional checks and balances and extensive formal control mechanisms (Nutt, 2000). Weinberg (1983) notes that private organisations know bureaucracy but can carry out rational strategies because of their control on tightly structured hierarchical organisations. While public managers only have the cost of hierarchy (red tape/rules) and no benefits (freedom and power to manage subordinates) (in Kankanhalli & Kohli, 2009). Bureaucracy can be crippling, e.g. punitive personnel actions are seldom pursued in the public sector as the procedures to do so, are too complex and time consuming (Boyne, 2002).

Empirical tests cannot provide a conclusive answer. Boyne (2002) remarks that from four studies that empirically tested the relationship between publicness and red tape, only one found strong support. He further refers to eleven studies that tested the hypotheses that public organisations are more bureaucratic. Six strongly supported this hypothesis but two other studies found that private firms were more bureaucratic. Parker & Subramaniam (1964) argument that public and private managers may perceive rules as equally important. Boyne concludes that although the majority of studies has a support score of more than 50 per cent, doubts remain about the relative bureaucratisation of both sectors. This view confirms Knott's (1993) statement of ten years before. He remarked that "research does not conclusively support the claim that public sector organisations are more bureaucratic than their private sector counterparts" (in Scott, 2002).

#### **4.3.3. Performance**

Public sector performance measures are significantly different from criteria in the private sector. Assessing how well the public sector accomplished its goals, is difficult as it often has diverse competing objectives (Kankanhalli & Kohli, 2009; Keltgen, 2009; Ward, 2006; Nutt, 2000). While public sector performance is evaluated via social welfare, private sector organisations are likely to be evaluated on financial metrics (e.g. ROI, market share) (Kankanhalli & Kohli, 2009). Pffifner states that public organisations provide services that would not produce profit in the private sector, so there is no way to judge how an activity contributes to profitability (in Keltgen, 2009; Halvorsen et al, 2005). Public organisations often lack competition concerning the supplying of services, because of this public sector might lack incentives to improvement and for performance (Kankanhalli & Kohli, 2009; Halvorsen et al, 2005; Rochelau & Wu, 2002).

It is more difficult to measure the performance of public employees (Halvorsen et al, 2005). Payment of public managers is not realised by performance and career employees are confronted with a political appointed top (Tait & Pacheco, 2000). Public organisations that receive revenues from 'political sponsors' are likely to be unresponsive to the preferences of the people who receive their services (Boyne, 2002). In contrast to the public managers, monitoring and controlling has a monetary incentive for private sector managers: A better performance might raise their results based wage or their company shares. Ironically, where efficiency gains and cost savings in the economy are rewarded through profits, similar gains in government are 'rewarded' with budget cuts, staff reductions, loss of resources and consolidation of programs (Fountain in Morgeson & Mithas, 2009). As such private sector organisations are more responsive to evaluation criteria of cost efficiency and timeliness. Besides employee'

performance, IS success performance is also more difficult to measure. Performance criteria such as quality of output information, adaptability of IS and user-friendliness may prove difficult to be measured due to widespread nature of public access and vague intangible nature of outputs (Nandi & Nayak, 2008). Government performance remains largely ignored and unmeasured and where it is measured results are not used in meaningful way (Morgeson & Mithas, 2009). The literature on measuring the performance and success of e-Commerce/e-Business and e-Government is still in its early stages of development (Scholl, 2006)

The implementation of IS systems has lower success rates in public sector (Kankanhalli & Kohli, 2009). Once implemented, process and workflow alignment is still a challenge in government because of regulations and laws, bureaucratic inertia, turf protection, unwillingness to collaborate etc. (Barzilai-Nahon & Scholl, 2010). The reengineering of processes has proven difficult in private sector but research suggest that public organisations might face even more severe challenges in the bureaucratic, functionally-oriented, legacy system driven environment of government (Weerakkody et al, 2011).

IS systems in public sector are often not crucial for an organisation's existence but rather a cost-cutting device and a tool to provide access (Rochelau & Wu, 2002). Investments in large sophisticated IT is less supported by government decision makers (Kankanhalli & Kohli, 2009). Economic factors are less dominant for the success of public IT investments (Kankanhalli & Kohli, 2009).

In both sectors high information quality is crucial to the success of an e-project and to prevent negative economic effects (Barzilai & Scholl, 2007). The maintenance of information quality is more challenging in e-government because of higher volumes of information, the possible error range and the impact information has on people. etc. Information has to be kept and archived for a long period of time in the public sector. This in combination with a difficult balance between free information and privacy and a high volume of data makes content management in government more challenging (Barzilai-Nahon & Scholl, 2010; Scholl et al, 2009; Sundgren, 2005).

#### **4.3.4. Personnel**

Research on personnel has focused on issues such as motivation, job satisfaction, identification and commitment (Rochelau & Wu, 2002). Several studies suggest differences on these issues but empirical support is often lacking:

Public managers lack the ability of monetary or status incentives but other rewards such as job security and stability might be motivating (Halvorsen et al, 2005; Scott, 2002). On the other hand, Scott (2002) remarks that there is a limited difference on job security between the two sectors. Public and private staff have different attitudes and aspirations towards work and life in general. Private staff may be more motivated by personal economic prosperity. Private workers nevertheless also aim for broader social purposes than mere profitmaking (in Keltgen, 2009). Public managers might have a stronger desire to serve the public. Ward (2006) states that public sector employees feel less fulfilled by their occupation, less committed and less involved to the organisation. Boyne (2002) refers to five studies that found that public managers are less materialistic and are less likely to be motivated by financial rewards. Keltgen (2009) comes to the same conclusion. In contrast, two studies of Posner & Schmidt (1982) and Gabris & Simo (1995) do not find any difference (in Boyne, 2002). Scott (2002) and Boyne (2002) warn that research on motivation results in mixed conclusions.

The level of organisational commitment is believed to be lower in the public sector because of inflexibility of personnel procedures and the weak link between performance and rewards (Bozeman 2000). It is often difficult for public managers to observe any link between their contributions and the success of their organisations. This absence is due to various factors: the size of many governments, their plu-

realistic composition and the lack of clear-cut performance indicators or norms. Whether this leads to poorer organisational performance, is unknown (Boyne, 2002).

Rochelau & Wu (2002) add 'investment in IT training' to the list of research on personnel related issues. Levels of training are reported to be lower in public sector organisations but both sectors do not seem to give a high priority to training (Nandi & Nayak, 2008). Most public organisations will not be able to demonstrate a close relationship between training and achievement of their complex goals in general (Rochelau & Wu, 2002). The question is whether Rochelau & Wu results, based on data of 1995, still count as IT possibilities and IT use in organisations evolved tremendously the last 20 years.

Some researchers compared IS related personnel issues between the two sectors. E.g. many public organisations have followed private organisations in terms of structure, by e.g. hiring a CIO (Rochelau & Wu, 2002). Public organisations could acquire software from private organisations instead of developing it. Along Ward (2006) a personnel application developed for and in widespread use by the private sector could easily be adopted by many government organisations. Applications could be imported or tasks could be outsourced. This could solve the problem of finding and hiring capable public IT employees because of the time-intensive hiring practices and lack of competitive salaries (Keltgen, 2009; Barzilai-Nahon & Scholl, 2007; Scholl, 2006; Halvorsen et al, 2005). Outsourcing might bring more competition in IT workers in the public sector (Rochelau & Wu, 2002).

#### **4.3.5. Autonomy and leadership**

The top managers of the public and private sector seem to have varying degrees of executive control (Euske, 2003; Blumenthal in Scott, 2002). Private managers seem to come to smoother less bumpy decision making processes (Nutt, 2000). Public sector executives tend to have less control, independence and ability to adapt. Public sector managers perceive that they have less autonomy and leeway in exercising leadership than their private colleagues (Scott, 2002). This can be attributed to several factors: 1) Leadership is monitored closely and is under continuous external pressure (Halvorsen et al, 2005). 2) If public managers are in dispute, the people they supervise have the option of appealing to outside authorities (Ward, 2006). Nutt, 2000). 3) They are placed on lower organisational levels (Rochelau & Wu, 2002; Scott, 2002) 4) These managers face greater outside influences, public sector decision making is open by mandate which creates more obstacles for public sector managers. 5) Policy formulation and implementation is separated in the public sector but not in the private one (Scott, 2002). 6) Government operates through networks of interdependent organisations rather than through independent organisations (Nandi & Nayak, 2008; Keltgen, 2009). 7) Allison (1984) and Weinberg (1983) add that the lower degree of autonomy is prevalent in personnel issues such as hiring, firing, taking punitive actions and implementing reward structures (Keltgen, 2009). 8) Public managers also have weaker power bases and less authority to make investments (Halvorsen et al, 2005). Boyne (2002) on the other hand remarks that statistical results only show patchy support for the hypothesis of lower managerial autonomy in the public sector.

Interorganisational aspects and processes are central in all organizational development regardless of the sector (Melin & Axelsson, 2010). Increasing cross-sector collaboration has become possible because of e-Government and e-Business/e-Commerce IS. This gives an incentive from streamlining and redesigning workflows and processes. Public sector managers have less autonomy but in both sectors, cases can be found where the redesign and streamlining of a process or workflow hinges upon another party's willingness to adjust and streamline processes (Barzilai & Scholl, 2010). Private sector managers themselves are not directly motivated to cooperate with governmental agencies as these form no threat to their existence, they rather stay autonomous (Janssen et al, 2008).



## 5. Future research

In many cases if a question is asked about the differences between the sectors than the only appropriate answer is 'I do not know' (Boyne, 2002). So many suggestions for future research can be made.

Some suggestions concerning topics of research are:

- Less fungible classification methods (Ward, 2006)
- More covering of G2B and B2G relations (Melin & Axelsson, 2009)
- Comparing different types of organisations in the two sectors, with differences based on industries, local government-state, size, types of services... (Melin & Axelsson, 2009). More fine-grained sub-sector specific analysis might be found necessary (Barzilai-Nahon & Scholl, 2007)
- Comparing the difference in IS priorities by managers from both sectors (Ward, 2006)
- Comparing process redesign practices (Barzilai-Nahon & Scholl, 2010; Barzilai & Nahon, 2007). E.g. the extent that Enterprise Resource Planning may help align the trajectories between e-Commerce and e-Government to a higher degree (Scholl et al, 2009).
- Research on the relative bureaucratization of the two sectors (Boyne, 2002)
- Research on publicness hypotheses and on the relationships between dimensions of publicness (Boyne, 2002).
- Study how cross-sector IS needs can be matched by examining the origins of e-Government research and by studying previous research gaps. How can cross-learning be facilitated? (Kankanhalli & Kohli, 2009).
- Identify IT and development methodologies that have the potential to address the most pressing public sector issues (Kankanhalli & Kohli, 2009).
- Research on how public sector accountability practices can be adapted to the private sector (Kankanhalli & Kohli, 2009).
- Research on not yet considered contextual factors such as decision difficulty or the degree of conflict (Nutt, 2000)
- A more detailed analysis of characteristics of e-Government and e-Commerce/e-Business systems, their applications and their organisational impacts (Scholl, 2006)
- Research empirically the benefits of e-Government and e-Commerce (Morgerson & Mithas, 2009). E.g. is private business really more efficient (Keltgen, 2009).
- Compare e-Commerce and e-Government literature reviews (Barzilai-Nahon & Scott, 2010).
- ...

Some suggestions concerning research methods are:

- More quantitatively oriented research (Barzilai-Nahon & Scholl, 2010; Scholl et al, 2009)
- More empirical research that employs better methods (Boyne, 2002)
- A multivariate statistical model should be used that controls for other relevant variables concerning publicness (Boyne, 2002).
- Qualitative approaches may help illuminate whether publicness matters and why or how (Boyne, 2002)
- Interviews could be undertaken with managers who have worked in both sectors (Boyne, 2002)
- Include statistical controls for organisational size (Boyne, 2002)
- Add more control variables (Boyne, 2002)

• ...

## 6. Conclusion

During this preliminary phase of our research we explored the similarities and differences between public and private sector organisations via a literature review. The definition of ‘public’ and ‘private’ is contested. When looking at similarities and differences between these two sectors, it seems important to make clear from which approach one departs. The three approaches of Scott form a possible distinction. The generic approach sees an organisations as either public or private and downplays differences. The core approach distinguishes based on the formal legal status of an organisation. While the dimensional approach makes the distinction based on how an organisation is influenced by an external political and economic authority, organisations are placed on a public-private continuum.

Researcher disagree whether it is useful to compare public and private organisations or not. We decided to at least carefully look where possible differences and similarities arise. The found differences and similarities were organised based on a classification of Rainey et al (1976). They distinguish environmental factors, organisational (transactional) factors and internal processes.

From the literature two external factors came to the surface: constraints and revenues. The majority of past research comes to the conclusion that public organisations are more open to external and political influences. Openness and a focus on quick wins make strategic planning difficult. Revenues based on one-year-budget cycles further confirm the difficulty of strategic planning. In contrast to the private sector managers, public managers lack economic pressures and cost savings bring along a decline of budget instead of a reward. Based on the articles reviewed in this paper, we seem to notice that researchers are quite on one parallel about external factors: these differ between public and private organisations.

Based on the study of the 20 articles we found three organisational /transactional factors: scrutiny, customer vision and procurement. Compared to private organisations, public organisations are more open and collaborative with stakeholders., public organisations act more cautious because of greater scrutiny, this creates red tape. Secondly in comparison to private organisations, public organisations pay more attention to a diverse group. The vision towards customers is different for the two types of organisations and this can be noticed in different drivers of design and assessments. Thirdly less economic criteria play for procurement in the public sector compared to the private sector. Again we seem to identify a consensus between the findings of the studied articles.

Five factors concerning internal processes popped up from literature. These are goals, bureaucracy, performance, personnel and autonomy-leadership. First concerning goals, agreement was found that public organisations have more different goals than private ones. Disagreement remained whether public and private organisations have different priorities and whether public goals are more vague. Secondly consensus was neither found on the question whether or not there is more bureaucracy in the public sector. Thirdly making statements about public sector performance is risky because this is largely unmeasured. The studied articles agreed that public organisations do not receive competitive pressures for improvement and that cost-efficiency is not rewarded in public sector. For both sectors high information quality is important. Fourthly, concerning personnel factors empirical support could not provide a conclusive answer on differences in motivation, job security, degree of materialism and the link between commitment and performance. It is also unclear whether research results about IT training from 1995, are still standing today. Finally concerning a difference in autonomy and leadership researcher seem to agree that public managers have less control, independency and a more limited

ability to adapt. There is more disagreement in research results about the internal factors than about environmental or organisation factors.

We can generally conclude that there are important differences as well as similarities between the two sectors. A lot of future research opportunities exist (see section five). In the future we will look for some extra articles based on extra search terms such as the abbreviation PMIS (public management IS), ECIS (e-Commerce IS), EGIS (e-Government IS) and corporate IS. We would also like to study the approach and results of Barzilai-Nahon & Scott (2010;2007) more closely as they conducted a highly relevant study concerning similarities and differences in e-government and e-business.

For now it remains unclear whether public and private sector IS research streams should divorce and never look back, if they should live apart together or if they should have a happy cross-fertilizing marriage. Their relationship status is still rather elusive and complicated.

## References

- Barzilai-Nahon, K. & Scholl, H.J. (2010). Siblings of a Different Kind: E-Government and E-Commerce. *Lecture Notes Computer Science*, 6228, 25-37.
- Bandara, W., Miskon, S., & Fielt, E. (2011). A systematic, tool-supported method for conducting literature reviews in information systems. In Tuunainen, V., Nandhakumar, J., Rossi, M., & Soliman, W (Eds.) *Proceedings of the 19th European Conference on Information Systems (ECIS 2011)*, Helsinki, Finland.
- Benbasat, I., Zmud, R.W. (1999). Empirical Research in Information Systems: The Practice of Relevance. *MIS Quarterly*, 23(1), 3-16.
- Boyne, G.A. (2002). Public and private management: what's the difference? *Journal of Management Studies*, 39(1), 97-122.
- Euske, K.J. (2005). Public, private, not-for-profit everybody is unique? *Measuring Business Excellence*, 7(4), 5-11.
- Goldfinch, S. (2007). Pessimism, Computer Failure, and Information Systems Development in the Public Sector. Perspectives on Performance and Accountability in Public Administration, *Public Administration Review*, 67(5), 917-929.
- Halvorsen, T., Hauknes, J., Miles, I, Røste, R. (2005). Innovation in the Public Sector, Report D9. On the differences between public and private sector innovation.
- Janssen, M., Kuk, G. & Wagenaar, R.W. (2008). A survey of Web-based business models for e-government in the Netherlands. *Government Information Quarterly*, 25, 202-220.
- Kankanhalli & Kohli (2009). Does Public or Private Sector matter? An agenda for research in e-government. PACIS 2009.
- Keltgen, J. (2009). Public Administration and Business Administration: Siamese Management Twins Separated at the Heart?, University of South Dakota.
- Melin, U. & Axelsson, K. (2010). Inter-organizational Information Systems and Interaction in Public vs. Private Sector – Comparing Two Cases. *Lecture Notes Computer Science*, 6228, 38-49.

- Morgeson III, F.V. & Mithas, S. (2009). Does E-Government Measure Up to E-Business? Comparing End User Perceptions of U.S. Federal Government and E-Business Web Sites. *Public Administration Review*, July-August, 740-752.
- Nandi, M.L. & Nayak, G.K. (2008). Information Systems Management in Public Sector Organizations. *International Conference on Information Technology*, 2008(68), 289-294.
- Niehaves, B., Plattfaut, R. & Becker, J. (2013). Business process management capabilities in local governments: A multi-method study. *Government Information Quarterly*, 30, 217-225.
- Nutt, P.C. (2000). Decision-making success in public, private and third sector organizations: finding sector dependent best practice. *Journal of Management Studies*, 37(1), 77-108.
- Rainey, H.G. & Bozeman, B. (2000). Comparing Public and Private Organizations: Empirical Research and the Power of the A Priori. *Journal of Public Administration Research and Theory*, 10(2), 447-469.
- Rocheleau, B. & Wu, L. (2002). Public Versus Private Information Systems: Do they Differ in Important Ways? A Review and Empirical Test. *The American Review of Public Administration*, 32(4), 379-397.
- Scholl, H.J., Barzilai-Nahon, K. Ahn, J.H., Popova, O.H. and Re, B. (2009). E-Commerce and e-Government: How Do They Compare? What Can They Learn From Each Other?, Proceedings of the 42nd Hawaii International Conference on System Sciences, 1-10.
- Scholl, H.J. (2006). What can e-Commerce and e-Government Learn from Each Other?. *The Information School*, University of Washington, 454-455.
- Scott (2002) Analysing Differences Between Public and Private Sector Information Resource Management: Strategic Chief Information Officer Challenges and Critical Technologies, Thesis, Air University.
- Sundgren, B. (2005). What is a public information system?. *International Journal of Public Information Systems*, 2005(1), 81-99.
- Tait, T.F. & Pacheco, R.C. (2001). Presentation of an information systems architecture model for public sector. *3rd International Conference on Enterprise Information Systems*, ICEIS 2001, 275-278.
- Ward, M.A. (2006). Information systems technologies: a public-private sector comparison. *The Journal of Computer Information Systems*, 46(3), 50-56.
- Webster, J. & Watson, R.T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review.
- Weerakkody, V., Janssen, M. & Dwivedi, Y.K. (2011). Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector. *Government Information Quarterly*, 28, 320-32.

APPENDIX A Authors	Goal	Method	Studied factors/ dimensions/ features/ issues/ variables
Nutt (2000)	Study of the approaches used by decision makers to uncover alternatives in public, private and third sector organisations. Study of the preferred approaches per sector.	6 hypotheses are tested on a database with 376 strategic decisions cases. Interviews with top executives and line managers were conducted to identify practices that were used to carry out strategic decisions. Questionnaires were used to determine values for success indicators.	Environmental : market, co-operation versus competition, data availability, constraints, political influence. Transactional: scrutiny, ownership. Organizational: goals, authority limits, urgency
Tait & Pacheco (2000)	The creation of an information systems architecture model that comprises the integration of IS, technology, business processes and users in the public sector	Theoretical foundation (literature on IS architecture and public sector). Case studies.	Secondary source
Boyne (2002)	Theoretical arguments on the differences between private firms and public agencies are reviewed to develop a research agenda for better comparisons. Whether the existing evidence understates or overstates the distinctiveness of public agencies is researched too.	13 hypotheses are identified on the impact of publicness on organisational environments, goals, structures and managerial values. Evidence from 34 empirical studies of differences between public agencies and private firms is evaluated. The period of literature review is 1970-2002.	Publicness, organizational environment (complexity, permeability, (in)stability, competitive pressures), organizational goals (bureaucracy, red tape, managerial autonomy), organizational structures and values of managers
Rochelau & Wu	Gain more insight in public	Review studies that compared public and private systems. Empirical test of public-private	Based on Bozeman & Bretschneider (1986). Risk aversion, authority, goals, budgets, procurement,



(2002)	and private IS differences.	differences: 4 hypotheses are tested in the area of IT training. Survey of public and private sector IS managers.	interlinkage programs.
Scott (2002)	Discover whether public and private sector CIOs are faced with the same challenges and view the same technologies as critical for their organisation's operations	Literature review of organisational research that compares public and private organisations in terms how they view information resources management from the strategic perspective of CIO's and senior information resource managers of large companies in US and federal agencies.	Motivation, organisational environment, organisational goals, organisational structure, management processes, decision making, strategic management.
Euske (2003)	Defining the differences and similarities between the public, private and not-for-profit sector and attempt to point out that there are commonalities in the need for data across organisations in all sectors of economy.	Not clearly mentioned, seems literature review	Adapted from Nutt & Backoff (1992) Environmental: market, revenues, constraints political influence. Transactional: coerciveness, scope of impact, public scrutiny, ownership. Organizational: goals, authority limits, performance expectations, incentives.
Halvorsen et al (2005)	Sketching the differences between public and private sector innovation	Collection of papers in the frame of the PUBLIN research line. Study of literature.	Organising principles, organisational structures, performance metrics, management issues, relations with end-users/ supply chains/ employees/ sources of knowledge, time horizon
Sundgren (2005)	This articles tries to uncover what public use is, if IS deal with public data only, if public IS systems should be public goods free of charge and to what extent public IS	Analysis of public IS from different literature perspectives	Secondary source

	are associated with public authorities and institutions.		
Scholl (2006)	Comparative study e-Commerce/e-Business and e-Government	Review of literature sector differences and similarities seen by traditional IS research.	Public-private distinction, differences and similarities, impacts/ effects/ proposed measures of success.
Ward (2006)	Study the relative importance public and private sector high-ranking executives place on different IS technologies	Review of literature IS technology and use in both the public and private sector. Survey sent to CIO's, about thirty possible IS technologies.	30 information technologies (e.g. security infrastructure, e-mail, next generation Internet, knowledge management etc.)
Barzilai-Nahon & Scholl (2007)	Exploratory and theory-testing study of differences and similarities between e-Government and e-Business	Empirical research pilot via a focus group with six individuals from leading e-Commerce engaged organizations representing various industries, while five individuals from the public sector representing the executive branch of various levels of government. E-commerce and e-Government literature that compares the sectors was used too.	Information management, process management, citizen/customer focus, digital divide, security, cost-benefit, stakeholder relations, standardizing, resources
Janssen et al (2008)	Concept 'business model' is unexplored in the context of e-government. Analysis of public sector websites based on web-based business models to derive e-government business models and detect possible areas of improvements.	Examine a sample of 59 websites to identify underlying business models via the survey method. Compare these with reviewed existing web-based business models found in e-commerce literature. Iterative approach to find a business model taxonomy and adapt it to e-Government business models.	Classify websites by e.g. the kind of provider, integrator, infrastructure, intermediary, virtual community.
Nandi & Nayak	Research unique issues in public sector organisations	Literature on various IT related issues that have been discussed in the literature and the	Adopted from Ives et al (1980). Environmental issues with the external environment (extra-organizational

(2008)	in order to know whether management practices followed in private sector organisations are replicable in public sector organisations.	present the status of the body of knowledge in this area	linkages, dependence on budget allocation), the organisational environment (red tape, high levels of scrutiny), the IS development environment (development techniques, resource constraints, goal conflicts, inadequate management capacities) and the IS operations environment (political cycles). Process issues with the IS development process (cost efficiency, timeliness, difficulty evaluative criteria, system drift), IS operations (hiring personnel) and IS use process (level usage, training, factors influencing usage). Information subsystem issues (content).
Kankanhalli & Kohli (2009)	Summarise previous IS research and identify differences between public and private sectors to suggest directions for future IS research.	Literature review	Ownership, scope, client relationship, goals, user expectations, evaluation metrics, organization structure
Keltgen (2009)	Explore differences and similarities of public and private sector management practices.	Management practices are examined in both public and private sector in terms of internal and external processes. This is done via a literature review. The experiences of three professionals are also taken into account.	Internal factors such as goals and evaluation criteria, structure decision making and control, finances, performance characteristics, nature of goods produced. External factors such as market exposure, legal and regulatory constraints, political influences, public scrutiny and expectations, scope of impact.
Morgeson & Mithas (2009)	Federal U.S. government's success in implementing and providing high-quality service through e-government	Perception of end users of federal government website as the metric of federal government's success in delivering high-quality customer service through e-government. Comparing an E-Business and e-Government survey sample	Determinants of customer satisfactions (customization, organization, navigation, reliability), measures of customer satisfaction (overall, confirmation expectations, comparison ideal) and future behaviour (retention, recommend)

		across a range of variables. Data from the American Customer Satisfaction Index are used too.	
Scholl et al (2009)	The paper reports on more robust findings from an ongoing empirical investigation and deepens the understanding of similarities and differences between e-Commerce and e-Government.	Recent e-Commerce and e-Government literature. Six focus groups were organised with $\pm$ five participants . 18 individuals from leading e- Commerce-engaged organizations representing various industries, while 17 individuals from the public sector representing the executive branch of various levels of government.	Process management, information management, citizen/customer focus, stakeholder relations, and digital divide.
Barzilai-Nahon & Scholl (2010)	Compare similarities and differences between e-Government and e-Commerce	Last phase of longitudinal explorative study. Two stages of focus groups with experts from both public and private sector.	Process management (process streamlining/integration, transaction processing, alignment and collaboration). Information management (Impact information quality, role of content management, stakeholder relations).
Melin & Axelson (2010)	Explore differences and similarities between e-Government and e-Business focusing on inter-organisational information systems (IOS)	Comparative case study of a public and private sector case. The case studies are done via interviews. Theory is used as a part of the iterative process of data collection and analysis.	Overall relationship characteristics (continuity, complexity, symmetry, level of formality), links (technical, administrative, activity, commercial), bonds (actor, economic, legal), ties (resource).
Weerkakkody et al (2011)	Translate Business Process Movement findings to the field of e-Government.	BPR characteristics are derived from normative literature with practical experiences of government agencies. Multiple case-study based qualitative research approach using semi-structured interviews (UK & the Netherlands)	Secondary source

